

Republic of the Philippines
Professional Regulation Commission Manila
Professional Regulatory BOARD OF ARCHITECTURE

Licensure Examination for Architects (LEA)

Sunday, June 29, 2008

8:00 a.m. - 6:00 p.m.

ARCHITECTURAL DESIGN AND SITE PLANNING

WARNING: *If there are conflicts between a stated word and the number/ amount/ figure described, the stated/ spelled word shall prevail. Should there be conflicts between two (2.0) stated quantities, the higher figure shall prevail.*

INSTRUCTIONS: On the space provided in your answer sheets, write your answers or solutions to the following problem.

PROBLEM SOLVING

I. PROJECT TITLE (and General Description)

Proposed Open Market Residential Prototype Project [consisting of an Eighty Eight (88.0) Sq.M. Gross Floor Area (GFA), Two (2.0)-Storey, Single-Detached House cum Site Development Planning Project for a Cluster of Eight (8.0) Prototype Houses, on a Generic Site with a Four Percent (4.0%) Slope] - PLAN/ DESIGN PROBLEM VARIANT 10 ONLY

II. STATEMENT OF THE ARCHITECTURAL PLANNING AND DESIGN PROBLEM

A multinational development company (the "Client") has decided that its property located in the better parts of the Municipality of Taytay in Rizal Province (Luzon Island) shall be developed to host an open market residential development.

Another registered and licensed architect (RLA) had actually been previously engaged by the Client. Prior to the said RLA's permanent migration to the USA, he had already submitted some architectural deliverables/ outputs for use by the Client. The Client has recently decided to commission a new RLA to complete the Project plans and designs.

The Client initially requires architectural plans and designs for the following Project components:

- 1) the architectural plans and designs for the 88.0 Sq.M. GFA Prototype House, including the plans/ designs for the architectural interiors;
- 2) the site development plan for the grounds of each House where the Total Lot Area (TLA) is at One Hundred Thirty Two (132.0) Sq.M., with dimensions of eleven meters (11.0 m) as frontage/ lot width and twelve meters (12.0 m) as lot depth; and
- 3) the cluster master development plan for the eight (8.0) Prototype Houses.

The **GFA** only refers to **enclosed** floor areas above grade (or natural ground) level and **excludes** all other floor areas, if these are still to be introduced at a later time.

The Prototype House shall be a **two (2.0)-storey exclusive/ semi-upscale development** with **each** 88.0 Sq.M. residential structure sited on a **132.0** Sq.M. lot. Eight (8.0) such Prototype Houses shall be constructed on the pre-selected **1,935.0** Sq.M. **portion** of the Client's property which is situated in an area with a **medium** density residential (**R-2**) zoning classification (reference **Figure 1**).

While the Prototype Houses are to be singled-**de**tached structures, their location in a **R-2** zone allows the use of an **endwall** or a firewall along **one** (1.0) side property line. However, the Client has opted for the use of an **endwall** i.e. a wall without operable windows but on which fire-rated glass blocks can be introduced to allow some natural light to filter in. With the use of such **endwalls**, **no** firewalls must be introduced in the **architectural** plans/ designs.

The **architectural** plans and designs to be evolved by the new **RLA** to be commissioned by the Client (**that is You!**), must comply with the **minimum** setback/ yard and **parking** requirements under the 2004 Revised Implementing Rules and Regulations (**R-IRR**) of Presidential Decree (**P.D.**) **No. 1096** (otherwise known as the 1977 National Building Code of the Philippines or **NBCP**), which **may** be **exceeded** and/ or actually creatively interpreted (for subsequent approval by the local Office of the Building Official or **OBO**).

III. DESIGN OBJECTIVES:

- a. To **complete** the architectural plans and designs started by another **RLA** for a Prototype **exclusive/ semi-upscale, low-rise, single-detached residential** building to be sited on a **R-2**-zoned property;
- b. To **prepare** the **related architectural drawings, specifications and estimates** to complete the **architectural documents** for the Project, in full compliance with Client instructions; and
- b. To plan and design a **closely-knit** residential cluster that may serve as a model development in the Project area.

IV. DESIGN CONSIDERATIONS:

- a. function and efficiency;
- b. vertical and horizontal circulation patterns;
- c. architectural character and form;
- d. aesthetics and landmark quality;
- e. solar, wind, noise, odor and view orientations;
- f. amenities, facilities, services and utilities (**AFSU**) introduced;
- g. security and safety features;

- h. compliance with prevailing laws on the physical planning and design of residences i.e. including the 2004 R-IRR of P.D. No. 1096 (the 1977 NBCP), the Fire Code (P.D. No. 1185) and the Accessibility Law (B.P. 344);
- i. maximized natural and artificial ventilation where applicable;
- j. a **pedestrian-oriented** site development plan (**SDP**);
- k. daytime resident parking and visitor parking spaces may be allowed on portions of the **8.0** meter (m) wide **cluster** road right-of-way (**RROW**)/ street; there shall be **no** overnight nor extended parking on any portion of the cluster **RROW**/ street;
- l. driveways (for individual carport access by residents) shall only be supplementary/ temporary (**not** permanent) parking areas;
- m. property lines shall be defined by soft-scaping e.g. greenery rather than by fences or perimeter walls;
- n. per Client's instruction, the residences shall be designed along **fused Philippine and American country home** architectural lines, drawing largely from local and American country exterior and interior architectural elements, combined with modern styling, uniquely **Filipino** spatial solutions and **tropical** architectural or **green/ sustainable** architecture features that go with the hot-humid Philippine climate.

V. PROJECT SITE FEATURES:

The +/- **one thousand nine hundred thirty five (1,935.0) Sq.M. Grand** Total Lot Area (**GTLA**) making up the entire **Project Site** (reference **Figure 1**) is rectangular in shape. It may be reached via a **ten meter (10.0 m)** wide **street** i.e. the secondary **RROW** of the Client's proposed overall development.

The Project site has an **thirty two (32.0) m** wide frontage that faces the south and a depth of **sixty point forty six (60.46) m**. The Project Site slopes at **four percent (4.0%) towards** the tree-lined **secondary** street [with one point eight (1.8) m wide paver-lined sidewalks on either side]. The surface of the **average** elevation of the sidewalk/s adjoining each **132.0** Sq.M. lot (reference **Figure 2**) shall be considered as elevation 0.0 m for the Prototype Houses.

To the sides of the Project site are other **semi-upscale** residences to be built within the next three to five (3.0-5.0) years. Directly across the secondary street is a pre-existing private high school building (also owned by the Client). The young students are a constant source of noise and congestion along the **secondary** street over the entire school year. To the rear of the Project site are other two (2.0)-storey duplex residences (**not** owned by the Client).

VI. APPLICABLE DEVELOPMENT CONTROLS:

The following development controls apply to the Project site:

- a. zoning classification is **R-2** (for single-attached or duplex residential land use, with firewalls allowed; however, the Client has given very specific instructions that only single-detached residences shall be constructed at the Project site and that there shall be absolutely **no** firewalls on any of the structures);
- b. based on Client instructions and partly based on the 1977 **NBCP** and its 2004 **R-IRR**, the Project shall also **attempt** to meet the following development limitations:
 1. a Building **Footprint** (per Prototype House) which can comply with the 2004 **R-IRR** of the 1977 **NBCP**;
 2. a Building Height Limit (**BHL**) of **ten (10.0) m**, measured from the **average** elevation of the sidewalk adjoining each **132.0** Sq.M. lot.

VII. PARTIAL INFORMATION/ DRAWINGS MADE AVAILABLE TO THE NEW RLA BY THE CLIENT (FOR USE AS MAIN BASES FOR THE ARCHITECTURAL PLANS/ DESIGNS NEEDED TO COMPLETE THE ARCHITECTURAL DOCUMENTS)

Based on the Client's advice and on the information made available to the newly-commissioned **RLA (that is You!)**, the new **RLA** must prepare the required **architectural** plans and designs based on the following information:

- a. the Project Site i.e. as already initially planned by the previous **RLA** (reference **Figure 1**); the Client has already **approved** the subdivision of the Project Site and has taken steps to prepare the separate titles to each lot (including the **cluster** street roadlot);
- b. the individual lot sizes and configurations for the Prototype Houses i.e. with the Building **Footprint** as already initially defined by the previous **RLA** (reference **Figure 2**); the Client wants to **maintain** the previously evolved Building Footprint for the Prototype House but also wants the new **RLA** to prepare a new site development plan (**SDP**) and a new ground floor architectural plan and design for comparison;
- c. the **Second (2nd) Floor Plate** as already initially developed by the previous **RLA** (reference **Figure 3**); the Client wants to **maintain** the previously evolved **2nd Floor Plate** for the Prototype House but again wants the new **RLA** to prepare a new **2nd** floor architectural plan and design for comparison;
- d. the **Outline Section** as already initially developed by the previous **RLA** (reference **Figure 4**); the Client wants to **maintain** the previously evolved **Section** for the Prototype House but similarly wants the new **RLA** to

prepare new architectural **sections** and elevations for comparison.

VIII. DESIGN REQUIREMENTS:

The stated Project requirements are as stated hereafter. Should the requirements **ex**ceed the development controls and/or the Client conditions under items VI and VII above, the necessary **adjustments** have to be made by the new **RLA (that is You!)** to fully comply with the stated controls and/ or conditions.

The **88.0 Sq.M.** Prototype House must have the following **minimum** enclosed and semi-enclosed spaces:

A. Total Enclosed Gross Floor Area (GFA) at 88.13 Sq.M. broken down as follows:

1. **Ground Floor indoor** components (at +/- **50.48** Sq.M.)
 - i. Kitchen/ Living/ Dining Areas at +/- 27.73 Sq.M.;
 - ii. Maid's Room at 5.33 Sq.M.;
 - Note (Catch): The minimum required area for a habitable room under P.D. No. 1096 is actually 6.00 Sq.M.*
 - iii. Toilet and Bath (T&B) 1 at 3.17 Sq.M.;
 - iv. Bedroom 1 at 9.55 Sq.M.;
 - v. Storage at 1.20 Sq.M.; and
 - vi. Stairs at 3.50 Sq.M.
2. **Second Floor indoor** components (at +/- **37.65** Sq.M.)
 - i. T&B 2 at 3.98 Sq.M.;
 - ii. T&B (Master Bedroom) at 3.78 Sq.M.;
 - iii. Common Area at 3.07 Sq.M.;
 - iv. Master Bedroom 1 at +/- 17.27 Sq.M.; and
 - v. Bedroom 2 at 9.55 Sq.M.

B. Total Semi-Enclosed Floor Areas at +/- 94.18 Sq.M. broken down as follows:

1. **Ground Floor outdoor** components (at +/- **79.52** Sq.M.)
 - i. Laundry/ Service Area at 32.68 Sq.M.;
 - ii. Carport at 17.39 Sq.M.;
 - iii. Green Area at 14.50 Sq.M.; and
 - iv. Driveway at 14.95 Sq.M.
2. **Second Floor outdoor** component/s (at +/- **14.66** Sq.M.)
 - i. Balcony/ Deck at 14.66 Sq.M.

IX. ARCHITECTURAL CONCEPT, PLAN, DESIGN AND DRAWING REQUIREMENTS:

A. ARCHITECTURAL DOCUMENTS

- a. **Statement of the Architectural Plan/ Design Philosophy** (in one paragraph of 150.0 words or less) and **Statements of the General and Specific Architectural Plan and Design Concepts** (at one paragraph of 150.0 words or less for each); graphics to help understand the architectural philosophy and concepts are encouraged;
- b. **Cluster Master Development Plan** for the entire **1,935.0** Sq.M. Project Site at **minimum scale 1 : 200 Meters (M)** and showing the following key information:
 1. the **Site Development Plan (SDP)** showing the **Building Footprints** for at least three (3.0) of the eight (8.0) lots;
 2. highlight accessibility features (provisions for the disabled to comply with B.P. No. 344);
 3. site perimeter security features e.g. perimeter wall or fence, pedestrian/ vehicular barriers, guard outpost (as necessary), etc.;
 4. pedestrian access systems;
 5. open parking areas and driveway;
 6. call out/indicate areas to be landscaped (hard-scape and soft-scape);
 7. the elements within the **cluster** and **secondary** street (**RROWS**), particularly the sidewalks and basic street furniture (only as necessary);
 8. the adjoining land uses; and
 9. indicate the northing and the directions of the Philippine sun-path, the major winds (*habagat* and *amihan*), sources of noise and odors and available views (if any).
- c. Ground-level (man's eye view) **Exterior Perspective** for **one** (1.0) Prototype House, at any convenient scale;
- d. **Floor Plans (Ground and Second Floors and Balcony/ Deck Levels)** at scale **1 : 100 M**; highlight all introduced accessibility features and fire exits;
- e. **Reflected Ceiling Plans (Ground and Second Floors)** at scale **1 : 100 M**; call out all introduced fixtures and elements;
- f. **Roof Plan** (at scale **1 : 100 M**);
- g. **Longitudinal and Cross Sections** (at long and short axes) at scale **1 : 100 M** (referencing the appropriate reckoning points along sidewalks);
- h. **Schedule of Exterior Finishes** (matrix format);

- i. Schedule of Doors and Windows, at any convenient scale;
- j. One (1.0) Typical Toilet & Bath (T&B) Detailed Plan & Section, at any convenient scale;
- k. One (1.0) Typical Architectural Detail e.g. Detailed Section of Roofing/ Drainage Provision and Roof Support, at any convenient scale; and
- l. Summarized Budgetary Cost Estimate for Architectural Works (per major work item including architectural interiors).

B. ARCHITECTURAL INTERIOR (AI) DOCUMENTS

- a. Furniture layouts for all rooms/ areas at scale 1 : 100 M;
- b. Floor Pattern Plans (Ground and Second Floors and Balcony/ Deck Levels) at scale 1 : 100 M; call out the materials/ finishes introduced;
- c. Finished floor-level (worm's eye view) Architectural Interior (AI) Perspective at any convenient scale for both Ground and 2nd floors;
- d. Schedule of Interior Finishes (matrix format);
- e. One (1.0) Typical Architectural Interior (AI) Detail e.g. Details of Kitchen Counter and Cabinetry, at any convenient scale.

X. BASES OF GRADING (IN ORDER OF PRIORITY) :

- a. Functionality (including full satisfaction of the prescribed building use/s per floor or area, the provision of vertical and horizontal access systems, proximities, **TGFA** compliance and the like), space planning (including furniture or equipment layouts if/ where required, **TGFA** and parking locations and the like) and inter-relationships of exterior and interior activity areas (including orientations, relationship/s between the road right-of-way (RROW), yards and the Prototype Houses, treatment of transition spaces such as sidewalks and yards, general environmental design solutions and the like);
- b. Full conformity to examination instructions (where non-compliance/s by the **Examinee (that is You!)** can result in point deduction/s), completeness of the architectural plan and design solution/s (showing all of the prescribed/ required architectural and/ or engineering and even of allied design elements, only as absolutely necessary) and completeness of drawing requirements (with no extra drawings which shall not be awarded points);

- c. **General compliance with accepted architectural plan and design standards** (including height clearances, door and window sizes, carport parking slot sizes, hallway and ramp widths (as needed), toilet and kitchen layouts and the like), **site development planning/ SDP standards** (including building foot-printing as prescribed/ roof-printing as applicable, setbacks and yards, sidewalk and carriageway elements/dimensions, turning radii, ramp inclines, use and placement of trees and greenery, use of slopes, street furniture where applicable, drainage/ **waste management features**, security/ safety features and the like) and **building construction standards** (includes material selection, modular material sizes and the like);
- d. **Architectural character** (includes matching the required architectural character with the intended use/ function) and **aesthetics** (includes the good use of form/ scale/ proportion/ balance, the general satisfaction of basic architectural design principles and the like);
- e. **Structural concept** (including bay sizes, framing and alignment of columns, beams or other structural members, creative and workable use of non-conventional structural forms/ solutions and the like); and
- f. **Compliances with national building laws that are in full effect**, including:
 - 1. the 2004 Revised Implementing Rules and Regulations (**R-IRR**, effective 01 May 2005) of **P.D. No. 1096**, otherwise known as the 1977 National Building Code of the Philippines or **NBCP**;
 - 2. the Law to Enhance the Mobility of Disabled Persons (otherwise known as **B.P. No. 344**) and its IRR; and
 - 3. The Fire Code (otherwise known as **P.D. No. 1185**) and its IRR.

Figure 1. Project Site (8 Lots)

(refer to page 9)

Figure 2. Individual Lot with Prototype House Building Footprint

(refer to page 10)

Figure 3. Prototype House Second (2nd) Floor Plate/ Outline

(refer to page 11)

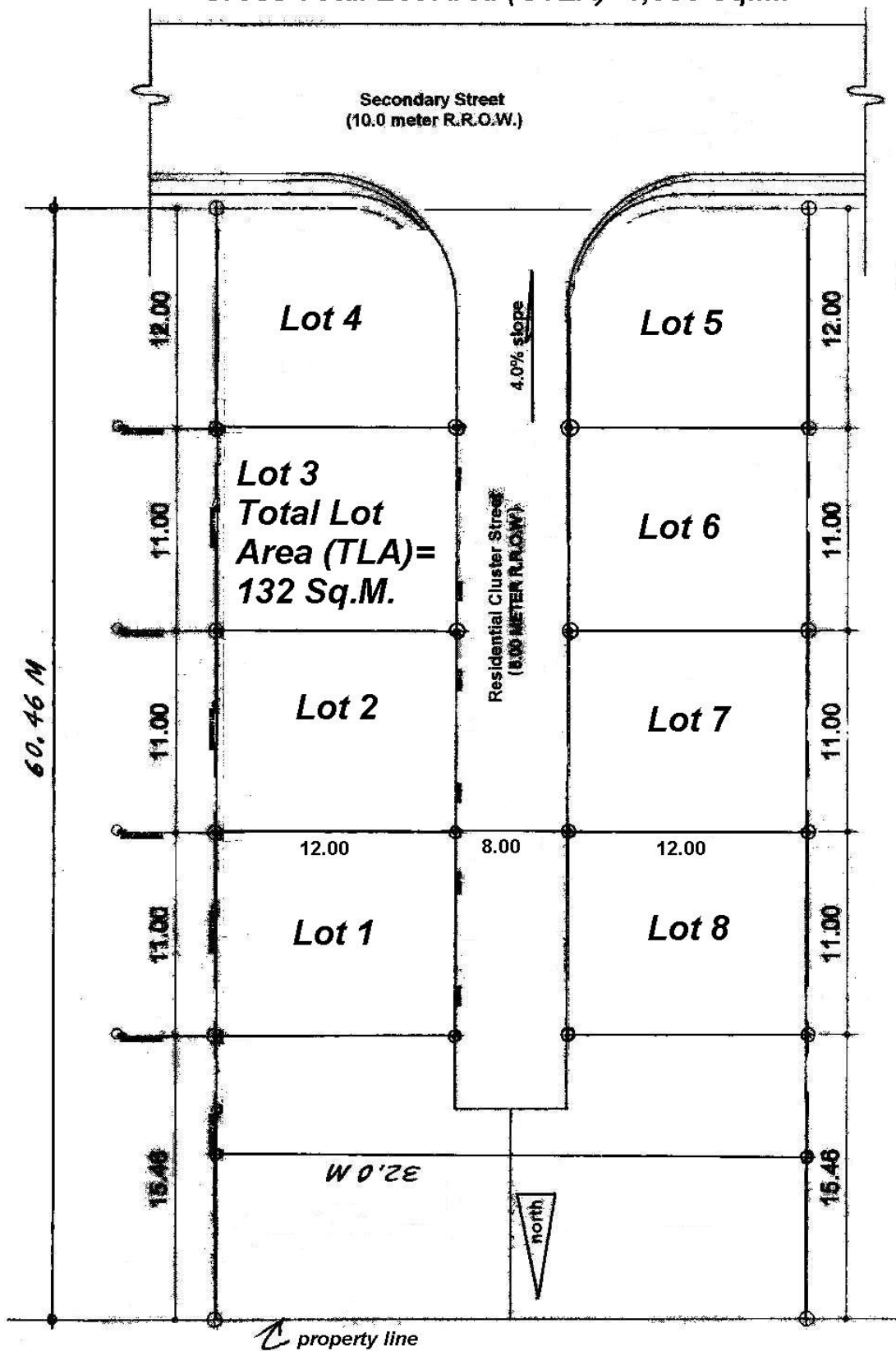
Figure 4. Prototype House Section Outline

(refer to page 12)

Scratch Papers on pages 13 through 18 follow (to be returned together with pages 1 through 11).

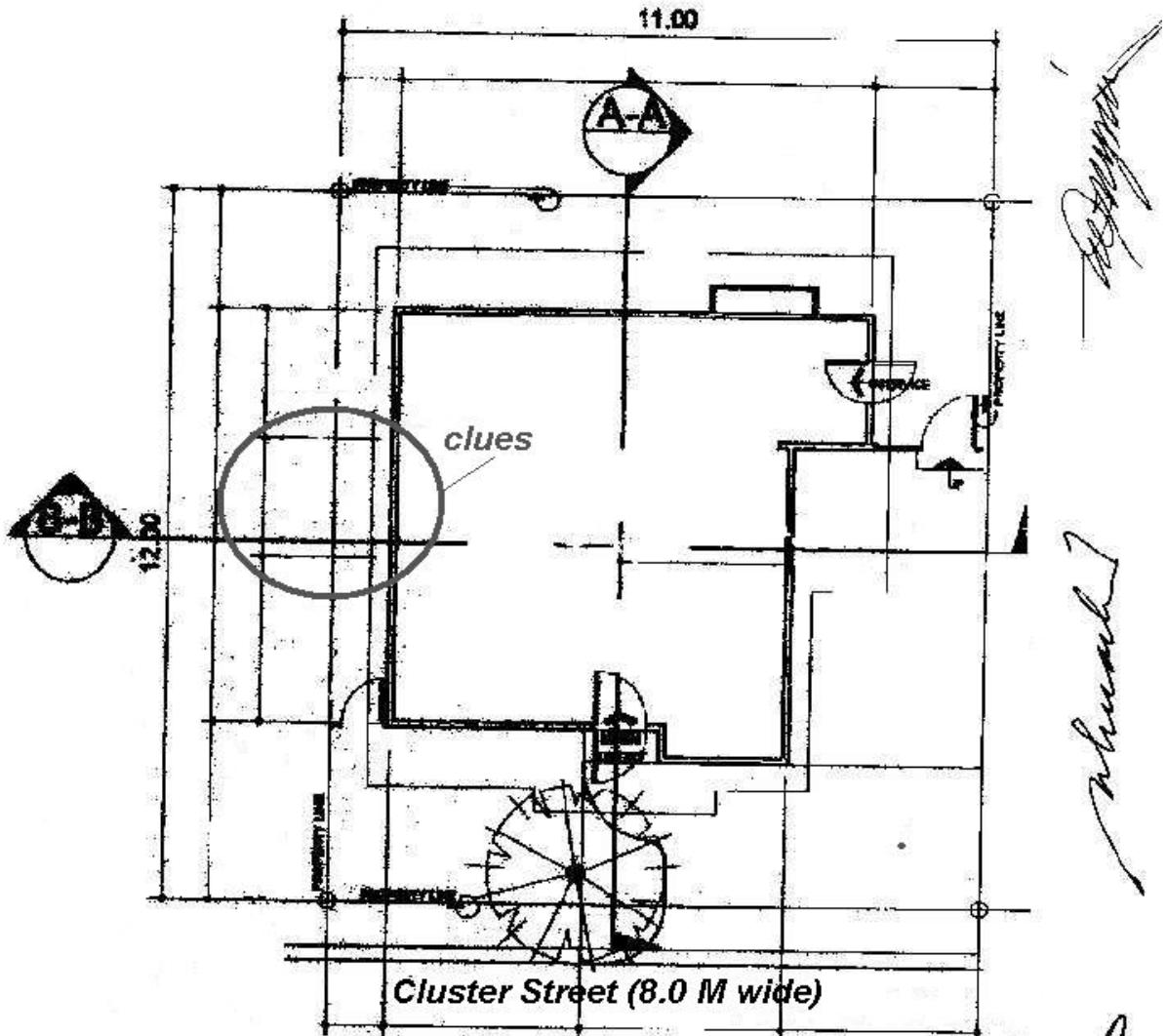
Figure 1. Project Site (8 Lots)

Gross Total Lot Area (GTLA)=1,935 Sq.M.



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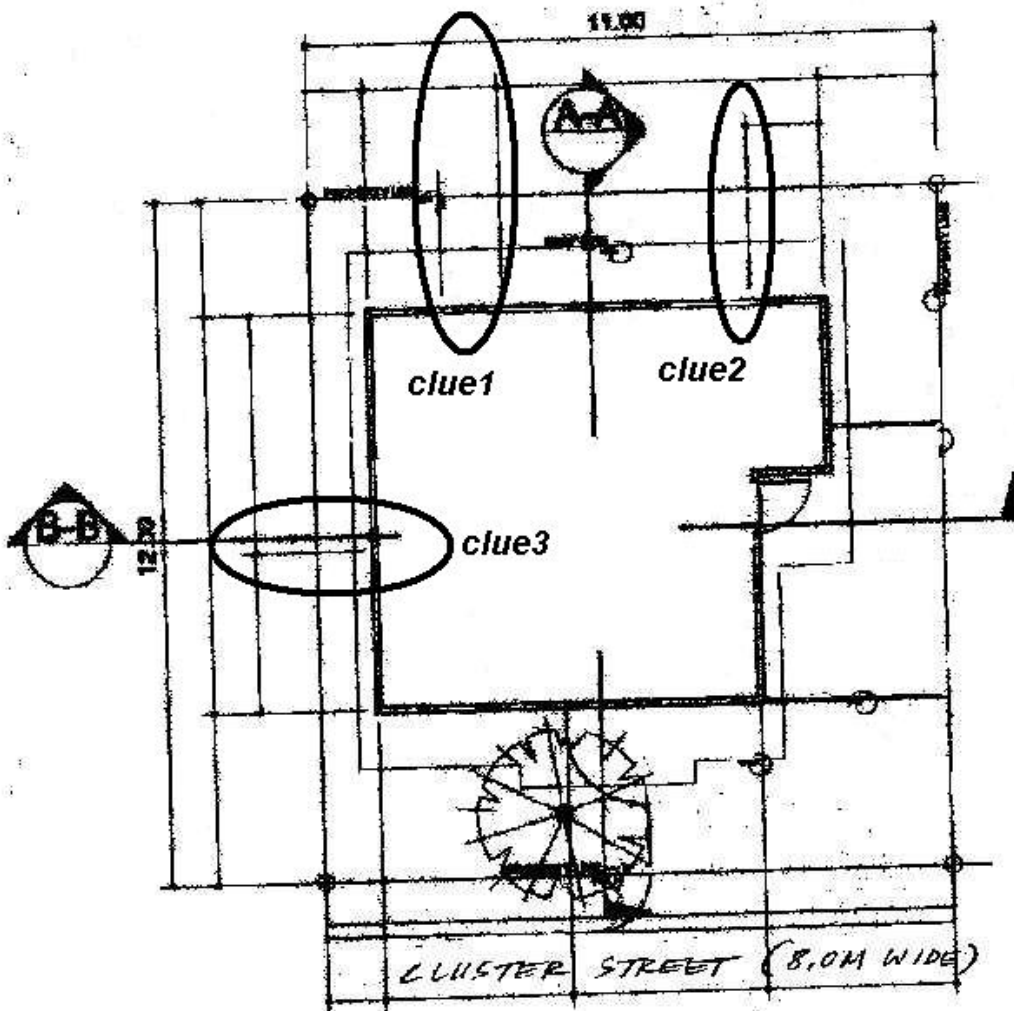
Figure 2. Individual Lot with Prototype House Building Footprint



OUTLINE OF GROUND FLOOR PLAN & BASE FOR SITE DEVELOPMENT PLAN (SDP)

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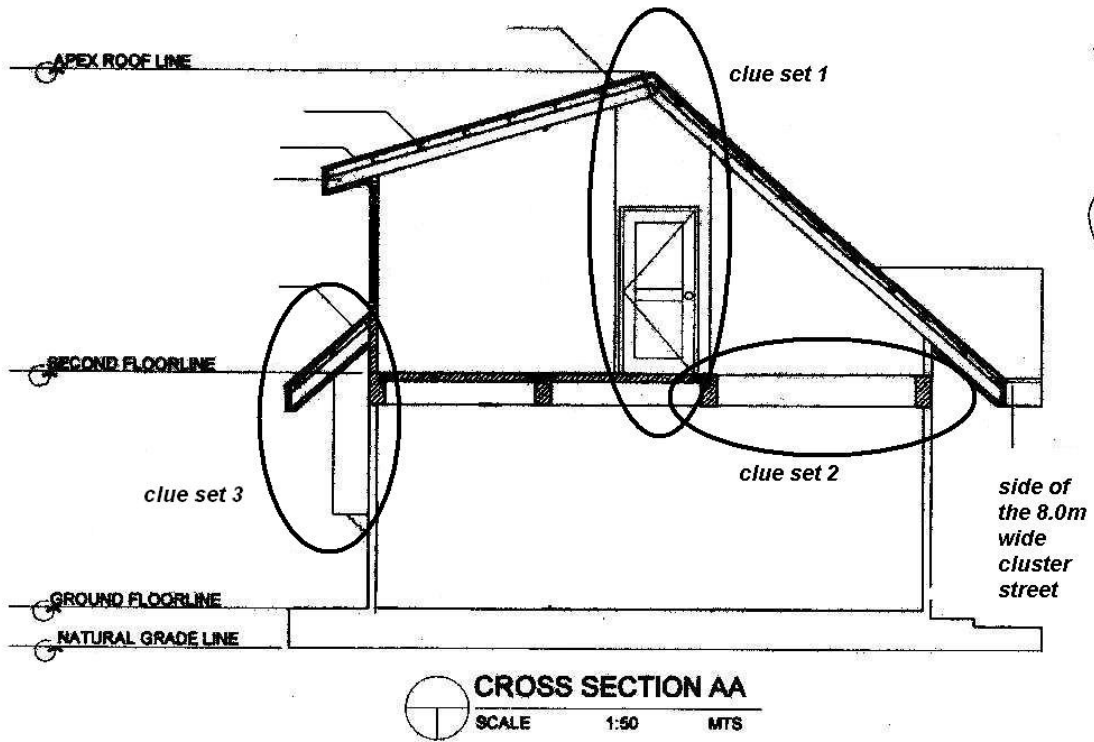
Figure 3. Prototype House Second (2nd) Floor Plate/ Outline



SECOND FLOOR PLAN
SCALE 1:100 MTS

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Figure 4. Prototype House Section Outline



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